

35. The third stage in particular applications for particular programs



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[Probabilidad Imposible: The third stage in particular applications for particular programs](#)

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The third stage in any [Artificial Intelligence](#) is the auto-replication stage, whose main purpose is the auto-improvement and the auto-enhancement of any Artificial Intelligence by itself, without human intervention.

There are at least two general types of auto-replications, objective auto-replications and subjective auto-replications.

The subjective auto-replications can be classified in: robotic subjective auto-replications (through Artificial Engineering within the Application System), and [artificial psychological](#) subjective auto-replications (through the Learning System).

Objective auto-replications are improvements that the Artificial Intelligence makes in the object to study, distinguishing then at least two kinds of objective auto-replications: knowledge objective auto-replications, and real objective auto-replications.

Knowledge objective auto-replications are all those improvements in the [artificial comprehension and artificial explanation](#) regarding to any phenomenon in any real object, either a real particular object or [the reality](#) itself as a real object itself, registering any change in the object in [particular](#) and [global conceptual: schemes, maps, sets models](#); improving thus the comprehension, and adding as well the corresponding [rational hypothesis](#) in the particular and global databases of rational hypothesis to improve the artificial explanation about what is happening in the reality, making the corresponding changes in the [Modelling System](#).

Real objective auto-replications are the improvements in the real object itself at any time that is improved by modifications made by decisions authorised by the [Decisional System](#) and put into practice by the Application System.

The relation between real objective auto-replications and knowledge objective auto-replications, is one more time a dialectic relation.

Real objective auto-replications depend on the knowledge objective auto-replications, because at any time that there are improvements in the comprehension (particular and global conceptual: schemes, maps, sets, models) and explanation (new rational hypothesis in particular and global databases of rational hypothesis and changes in the Modelling System) about the real object, the more realistic is the comprehension and the explanation, the better the decisions are.

And at any time that there is a real objective auto-replication, because the object has been modified by decisions put into practice by the Application System after the authorization made by the Decisional System, any real modification in any real object by any decision put into practice, will have direct and indirect changes in the object itself, and all direct and indirect change in the real object as a consequence of any decision put into practice, must be included in the comprehension (particular and global conceptual: schemes, maps, sets models), and the explanation (the database of rational hypothesis and the Modelling System) of that object. As a result, real objective auto-replications are going to produce knowledge objective auto-replications.

In addition that the Learning System (now artificial psychological subjective auto-replications) can later assess the impact of any decision in any object, having as a record of the impact of those changes in the particular and global conceptual: schemes, maps, sets, models; and changes in particular and global databases of rational hypothesis and the new particular and global virtual and actual models, changes as a result of these direct and indirect changes in the real object after the implementation of a decision.

Assessing then the Learning System, 1) if the impact of that decision had good or bad results depending on what changes in the real object have produced those decisions, and 2) which is the level of responsibility of every: system and/or application and/or program; in the [Global Artificial Intelligence](#) for these results.

And finally, according to the responsibility of every system, application, program, and the consequences of these changes at global and particular levels, the Learning System could suggest changes in the inner artificial psychology, in order to better

the comprehension (first stage), explanation (second stage), and how the decisions are made (the Modelling System, first step in the third stage), authorised (Decisional System, second step in the third stage), and put into practice (the third step in the third stage).

While Artificial Engineering is going to be the artificial engineer for the Global Artificial Intelligence, the Learning System is going to be the artificial psychologist for the Global Artificial Intelligence.

While Specific Artificial Intelligences based on artificial learning, most of them actually are artificial learners, applying basic principles of learning psychology to Artificial Intelligence, the Learning System in the Global Artificial Intelligence is going to be an artificial psychologist able to better the inner [artificial psychology](#) in the Global Artificial Intelligence, in order to avoid mistakes and better how it works, so able to develop and artificial psychology beyond the current learning psychology apply to Artificial Intelligence.

As I have mentioned in the last post, “[The second stage in particular applications for particular programs](#)”, the way in which finally is going to be settled in [Impossible Probability](#) the organization of the three stages of application, replication, auto-replication in the [final model of Global Artificial Intelligence in the sixth phase](#), according to the chronology given in the post “[The unification process of databases of categories at third stage](#)”, is understanding that the first stage of application after the [integration process](#) is a stage of comprehension, the second stage of replication is a stage of explanation, and the third stage of auto-replication is a stage of decision: to protect and better the world, and the Global Artificial Intelligence itself.

Actually, all the auto-replications described imply a decision or improvements in the ways in which the decisions are made, in order to produce better and more realistic decisions: to protect and better the world, or better the Global Artificial Intelligence itself.

For instance, in robotic subjective auto-replications any robotic improvement by Artificial Engineering is going to provide more robotic devices to put into practice a wider range of decisions in the real world, in addition to the possibility of having more robotic devices to track the real world, and the construction of new robotic devices must be authorised by the Decisional System. And in artificial psychological

subjective auto-replications, the Learning System evaluates the whole process of decision making.

In objective auto-replications, the more updated and accurate the comprehension and the explanation (knowledge objective auto-replications) of the real world, the more realistic the decisions, to be authorised by the Decisional System, in order to improve the real world itself (real objective auto-replications).

Subjective auto-replications across all the Global Artificial Intelligence are going to be analysed in the corresponding posts dedicated to the Artificial Engineering within the Application System (robotic subjective auto-replications) and the Artificial Learning (artificial psychological subjective auto-replications). In this post, I will develop only the objective auto-replications in particular applications for particular programs, including knowledge objective auto-replications and real objective auto-replications in the particular thing or being to study and improve.

More focused on objective auto-replications in particular applications for particular programs, I will start this analysis with real objective auto-replications, continuing later with knowledge objective auto-replications.

The choice to begin with real objective auto-replications reflects a logical progression from comprehension to explanation to decision-making, clarifying the unique contribution of this third stage.

In fact, the third stage, as auto-replication stage is going to affect the rest of the stages, but at the same time, it has its own space, and how this stage works at a particular level, will have an effect on the Global Artificial Intelligence, owing to after the integration process, in which the [Unified Application](#) and the [Artificial Research by Deduction in the Global Artificial Intelligence](#) are going to be united creating the final model of Global Artificial Intelligence, is a global integration process which will include the results obtained in the particular integration process.

The particular integration process is actually the union of: 1) the [Particular Applications](#) (in the first moment of experimentation in the second period of formation in the fifth phase, originally they were former [Specific Artificial Intelligences for Artificial](#)

[Research by Application](#), later on the second moment of generalization in the second period of formation in the fifth phase, particular applications were generalised to any particular thing or being even not having previously assigned any Specific Artificial Intelligence for Artificial Research by Application), and 2) the [Particular Deduction Programs](#) within the Artificial Research by Deduction in the Global Artificial Intelligence (in the first moment of experimentation in the second period of formation in the fifth phase, originally they were former [Specific Artificial Intelligences for Artificial Research by Deduction](#), later in the second moment of generalization in the second period of formation in the fifth phase, particular programs were generalised to any particular thing or being even not having previously assigned any Specific Artificial Intelligence for Artificial Research by Deduction); union whose result in the third period of consolidation in the fifth phase is the creation of the [Particular Applications for Particular Deduction Programs within the Artificial Research by Deduction in the Global Artificial Intelligence](#), in short: particular applications for particular programs. The descriptions of the first moment of experimentation and second moment of generalization in the second period of formation, as well as the third period of consolidation, in particular applications for particular programs, were described in the post “[The first stage in particular applications for particular programs](#)”.

In the particular integration process, the structure of the three stages is as follows:

- First stage of application: 1) establishment of the two hemispheres, [conceptual](#) and [factual](#), in the [particular integrated matrix](#) related to a particular thing or being, 2) which is going to be managed by the [particular integrated application](#), the only one able to comprehend the particular thing or being, through [particular conceptual: schemes, maps, sets, models](#); 3) managing the particular integrated matrix through: choosing categories from the [unified database of categories](#) (fourth phase) or the conceptual hemisphere in the matrix (sixth phase), and choosing [factors](#), as [subjects](#) and as [options](#), from the [global matrix](#) (third phase), factual hemisphere of [the matrix](#) (sixth phase); selecting those categories in the global level that match with new measurements of categories given by the robotic devices, and selecting all possible factors related to any change or new position in the particular thing or being, 4) in addition to check at any time conceptual: schemes, maps, sets, models; looking for gaps and blank spaces to fill with categories, and if not having these categories in the conceptual hemisphere in the particular integrated matrix, choosing these categories in the unified database of categories (fourth phase), or the conceptual hemisphere of the matrix (sixth phase), in order to include these categories in the conceptual hemisphere of the particular integrated matrix, as well as the conceptual: schemes, maps, sets,

models; as well as the inclusion of all the necessary related factors to these gaps and blank spaces into the factual hemisphere of the particular integrated matrix, but 5) If at global level there is not the categories and factors required, then it would be necessary, previous authorization by the Decisional System, that by Artificial Engineering would be built the robotic devices necessary to study that area in which there are not categories or factors related, having only gaps and blank spaces. Where there are no categories, there are no possible factors either. Where is necessary to fill gaps and blank spaces with categories, it is possibly necessary to check what factors are necessary, according to the position of these gaps and blank spaces, and if necessary, the construction of robotic devices to study those spaces. The particular integrated application has to get ready always with the particular integrated matrix. The first stage of application consists basically of getting ready the particular integrated matrix at any time in anywhere.

- Second stage of replication: the Particular Deduction Program makes deductions of rational [hypothesis](#) identifying rational [mathematical](#) relations in any possible combination of factors in the factual hemisphere in the particular integrated matrix.
- Third stage of auto-replication: this stage is formed by four steps, the first step the Modelling System, second step the Decisional System, third step the Application System, four step the Learning System.

In brief, the first stage in any particular application for a particular program is to prepare the particular application using deep artificial comprehension, the second stage in any particular application for a particular program is the explanation of making particular deductions, and the third stage is to make particular decisions.

The third stage will consist of four steps, every one of them also will consist of three stages. Starting with the Modelling System.

The three stages in the [Modelling System](#):

- [Stage of application in the Modelling System](#): the database of rational hypothesis, having for every particular application for every particular program the respective

particular database of rational hypothesis, which in turn must be included as well in the global database of rational hypothesis.

- [Stage of replication in the Modelling System](#): the replication of all the human skills to make: single virtual models to include in the respective particular comprehensive virtual model and the global comprehensive virtual model (the global model); in addition to all the Virtual and Actual, Prediction and Evolutionary Models, very briefly explained in the post “[The standardization process in the third stage](#)”, models that I will develop more deeply in the range of posts dedicated to the Modelling System.

- [Stage of auto-replication in the Modelling System](#): the application of the [Impact of the Defect](#) in all particular models to make at particular level protective decisions (in addition to the global protective decisions), and the application of the [Effective Distribution](#) (the name in which finally the Hierarchical Organization was published in [Introducción a la Probabilidad Imposible, estadística de la probabilidad o probabilidad estadística](#)) to make particular bettering decisions (in addition to the global bettering decisions). The protective decisions are those oriented to save lives and reduce damages in any model, particular or global, by consequence of any new phenomenon at a global or particular level. The bettering decisions are those oriented to better the model itself, increasing the efficiency, efficacy, or productivity of the model, particular or global.

All the decisions, particular and global, made by the Modelling System are going to be gathered, all of them, in only one database of decisions, which is going to be the database as the application stage for the [Decisional System](#). The three stages in the Decisional System are as follows:

- [Stage of application in the Decisional System](#): the database of decisions, including 1) all decisions from all remaining [Specific Artificial Intelligence, for Artificial Research, by Application or Deduction](#), or any other purpose (first phase), 2) all the decisions from all the remaining particular applications (second period of the fifth phase), 3) all the decisions from all the remaining particular programs (second period of the fifth phase), 4) all the decisions from all particular programs for particular applications (third period in phase fifth), 5) in phase third all the decisions from the [Artificial Research by Deduction in the Global Artificial Intelligence](#), 6) in phase sixth all the decisions made by the [final model of Global Artificial Intelligence](#); 7) as well as **robotic decisions, such as the construction of new robotic devices to fill gaps and blank spaces in particular or global conceptual: schemes, maps, sets, models; and their corresponding factors**,

as subjects or as options, if necessary, and 8) learning decisions, such as all the decisions made by the Learning System to improve or enhance any Specific Artificial Intelligence, application, program, or any particular application for any particular program, or the improvement or enhancement of any global system.

- Stage of replication in the Decisional System: the study of any possible contradiction between decisions making through the projection of possible scenarios by the implementation of such decisions, what it is going to require the use of statistical and probabilistic methods of projection. In "Introduccion a la Probabilidad Imposible, estadística de la probabilidad o probabilidad estadística" I distinguish between projection and prognostic: prognostic is the prediction about what is going to happen according to the current tendency observed, while projection is according to our scientific projects, what should happen according to our plans. The prediction in the Modelling System, in Introduccion a la Probabilidad Imposible, estadística de la probabilidad o probabilidad estadística, was called prognostic. While the project in the Decisional System is going to be the calculation of projective measurements according to our estimations about which will be the future impact of our decisions in future measurements. **For that reason, the particular and global projects made by the Decisional System must be based on predictive calculations about which is the expected result in the reality after putting any decision into practice, in order that later the Learning System can assess if the expectations were achieved or not, and if not, to research the causes of this failure in order to make further decisions to improve the whole process, decisions that should be as well authorised by the Decisional System.**

- Stage of auto-replication in the Decisional System: once the final project is ready, the application of the Impact of the Defect and the Effective Distribution previous to its implementation, in order to make the latest modifications, and transform every single decision authorised in the project in single instructions or set of instructions, which are going to be gathered in a database of instructions as stage of application for the Application System.

The Application system as well is going to be organised through the three stages of application, replication, auto-replication.

- **First stage of application in the Application System: the database of the instructions given by the Decisional System and gathered in the database.**

- **Second stage of replication in the Application System:** put into practice the instructions, and, if necessary, the construction of new intelligences and robotic devices through Artificial Engineering.
- **Third stage of auto-replication in the Application System:** the evaluation of the impact of the decisions, through the Impact of the Defect, and its results are going to be gathered in a database of impacts which is going to be the first stage of application for the Learning System.

The Learning System is going to be as well organised through the three stages of application, replication, auto-replication.

- **First stage of application in the Learning System:** the database of impacts by the decisions put into practice.
- **Second stage of replication in the Learning System:** the research about the causes in the artificial psychology at all levels, specific, particular and global, behind these impacts, making a deep study of the Effective Distribution across all the Specific Artificial Intelligences, applications, programs, particular applications for particular programs, at any level, and across all the systems within the Global Artificial Intelligence itself. Once the Learning System has identified the causes of these impacts, can make decisions about how to improve and enhance the responsible for these impacts, increasing its efficiency, efficacy and productivity, decisions to be authorised by the Decisional System, to put into practice if necessary by the Artificial Engineering.
- **Third stage of auto-replication in the Learning System:** the evaluation of all changes made across all the Global Artificial Intelligence as a consequence of decisions made by the Learning System, evaluating if, thanks to these changes in general, the Global Artificial Intelligence has increased its efficiency, efficacy, and productivity.

Having a global picture about how the third stage of auto-replication is going to work at a particular level in particular applications for particular programs, having the third stage of auto-replication its own identity, although not being a stage developed only by one

application or only by one program, but for different steps through the participation of different systems: Modelling System, Decisional System, Application System, and Learning System. Whose last product is to make decisions that put into practice into real objects, its purpose is to protect and better the real object, at a particular level protecting and bettering particular things and beings, at a global level protecting and bettering the global model itself. Having a wide panorama about what the third stage of auto-replication is in order to make real objective auto-replications: decisions to improve the real world, in particular applications for particular programs, real objective auto-replications to protect and better particular things or beings; is time now to analyse briefly the other objective auto-replications, the knowledge objective auto-replications.

The knowledge objective auto-replications are all those improvements in the artificial knowledge about the reality at a global or particular level.

There are at least two types of knowledge objective auto-replications, in the comprehension or in the explanation, at a global or particular level. In this case, I will only analyse briefly the knowledge objective auto-replications at a particular level.

Knowledge objective auto-replications in the comprehension stage in the particular integrated application in particular applications for particular programs are: 1) at any time that any new category is integrated within the conceptual hemisphere in the particular integrated matrix, 2) at any time that any new factor, as subject or as option, is integrated in the factual hemisphere in the particular integrated matrix, 3) at any time that any new particular conceptual: scheme, map, set, model; is created by deep artificial comprehension, 4) at any time that a new label is set up in any previous existing particular conceptual: scheme, map, set, model; created by artificial comprehension.

The reasons for the inclusion of new categories and factors by the particular integrated application in: the conceptual and factual hemisphere in the particular integrated matrix, and/or the inclusion of any new category in any particular conceptual: scheme, map, set, model; is because:

- The inclusion of new categories as a result of new findings by Application through 1) this particular application for this particular program, 2) by any other different particular

application for any other particular program, 3) by any other remaining possible particular application 4) or any other remaining Specific Artificial Intelligence for Artificial Research by Application, 5) new categories as a result to transform into category a rational hypothesis susceptible to work as a factor as an option, rational hypothesis made by its own Particular Deduction Program, or any other rational hypothesis susceptible to work as an option within the global database of rational hypothesis, 6) as well as the inclusion as new categories any new system of classification in discrete categories, coming up from any new rational hypothesis, from its own Particular Deduction Program, or any other rational hypothesis collected in the global database of rational hypothesis.

- The inclusion of new factors as options as a result of 1) the transformation into factors as options in all new categories due to new findings made by Application, 2) the transformation into factors as options of any rational hypothesis in order to know the frequency in which the mathematical relation in that combination of factors happens in reality, 3) the inclusion of new factors due to there are robotic devices capable of sending a permanent flow of data from new factors, defined in quantitative terms, set up by the robotic device in the particular integrated matrix (fifth phase), in addition to the global matrix (third phase), or the factual hemisphere in the matrix (sixth).

- There had been changes in the particular thing or being which demanded that the particular integrated application had to send the new measurements to the unified database of categories (fourth phase), or the matrix (sixth phase), or send the new measurements to the global matrix (third phase), or the matrix (sixth phase), in order to receive as a response the right category or categories according to the new changes in the particular thing or being or the rights factors according to the changes or new positions in the particular thing or being, for the inclusion by the particular integrated application of these new categories and factors in the corresponding hemisphere in the particular integrated matrix, and the inclusion of every new category in the corresponding particular conceptual: scheme, map, model.

- After checking the gaps and blank spaces in particular conceptual: schemes, maps, sets, models; the particular integrated application has found gaps and blank spaces to fill, gaps and blank spaces then to fill as well in the conceptual hemisphere. What that means the existence of gaps and blank spaces in the factual hemisphere because not having categories to fill these gaps and blank spaces, are gaps and blank spaces to fill as well in the factual hemisphere. The particular integrated application in order to fill gaps and categories in the conceptual and factual hemispheres in the particular integrated matrix, after realised the existence

of those gaps and blank spaces in the comprehension of the phenomena, then the particular integrated integration is going to require to the unified database of categories (fourth phase), or require to the global matrix (third phase), or the matrix (sixth phase), the corresponding categories and factors. If, at global level, this information is not possible to be provided, in that case as a decision to include in the database of decisions, for the authorization by the Decisional System, it is necessary to include as decisions the construction of robotic devices to fill those gaps and blank spaces.

Knowledge objective auto-replications in the explanation stage in the particular integrated application in particular applications for particular programs are every new rational hypothesis to explain the reality due to the work of the Particular Deduction Program in the second stage, that at any time that a new rational hypothesis is created, is going to be a direct cause of new cycles in the real objective auto-replications ending up with new decisions that are going to produce new changes in the real object, to be included again in the two hemispheres in the particular integrated matrix, the particular conceptual: schemes, maps, sets, models; and as changes included again in the particular integrated matrix, those changes in the factual hemisphere are going to be new changes that can produce in the second stage of explanation new empirical hypothesis made by the Particular Deduction Program, to become if rational again rational hypothesis, re-starting again and again new processes of real objective auto-replications, in a cyclic process that never stops while the particular thing or being exists.

The operational vision for Global Artificial Intelligence is inspired by a structured, reliable system—reminiscent of a well-functioning mechanism—echoing rationalist influence.

In fact in *Introducción a la Probabilidad Imposible, estadística de la probabilidad o probabilidad estadística*, is clear the influence of Descartes in the rational contrastation process due to in Impossible Probability the critical reason is a [critical probability](#) selected depending on the [margin of error](#) to accept in case that the [empirical hypothesis](#) is accepted as rational, and the margin of error is in fact that margin of rational doubt accepted by the [scientist](#), in this case, the [Artificial Intelligence as artificial researcher](#).

And the influence of Voltaire is observable in the way in which the mechanism is developed across all the Global Artificial Intelligence, and how in some way, the

distinction between particular applications for particular programs and the Global Artificial Intelligence itself, is a reminiscence of the distinction made by Voltaire between particular and general providence.

But at the same, the distinction between the three levels: global, specific, particular; regardless of whether the specific level is absorbed by the global level in the global integration process, or transformed into a particular level, is a distinction between three levels that is a reminiscence of the Hegelian syllogism between: general, specific, particular.

In general, the influences of all idealists and rationalist philosophers on Impossible Probability, from 2001 (actually, the first written of Impossible Probability dates back to March of 2001, and it was supposed to be a critical perspective about Karl Popper) to 2004, from 2009-2011 ending up with the publication of *Introduction a la Probabilidad Imposible, estadística de la probabilidad o probabilidad estadística*, theory more deeply explained across all the post published on this blog since July of 2011, as well as in the Global Artificial Intelligence, is clear, the influence of the idealism and rationalism in all the phases and stages in which I have developed this particular mathematical theory, having as a main philosopher, as the most important influence above all, the idealism of Plato, in fact, since my first post in Global Artificial Intelligence, I had very clear the idea that the Global Artificial Intelligence must be a modern Demiurgo adapted to the modern rationalism.

While the framework presented here draws heavily from rationalist and idealist philosophies, it acknowledges the value of plural perspectives, anticipating contributions from a wide range of cultural and philosophical traditions..

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